

WHAT IS CLAIMED:

1. An image forming apparatus, comprising:

a drum-shaped image carrier, wherein the image carrier has a first end side and a

5 second end side on opposite ends of the longitudinal axis of the image carrier;

a toner storing device disposed adjacent to the image carrier;

a fixing device disposed parallel to the longitudinal axis of the image carrier; and

a cooling device, wherein the cooling device comprises an airflow path in which air
enters a side of the main body of the image forming apparatus, enters the image carrier

10 through the first end side of the image carrier, flows through the image carrier, and is

discharged from the second end side of the image carrier, makes a U-turn on the second end
side of the image carrier, and flows through a space between the toner storing device and the
fixing device, and returns to a position on the first end side of the image carrier in the main
body of the image forming apparatus.

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2. The image forming apparatus according to claim 1, wherein the cooling device

comprises a duct disposed in the space between the toner storing device and the fixing device,

wherein an opening of the duct is directed toward the toner storing device, and wherein a part

of the airflow path is formed in the duct by covering the opening of the duct by the outside of

20 the toner storing device.

3. The image forming apparatus according to claim 1, wherein the cooling device

further comprises a fan at a position where the airflow path makes a U-turn.

4. The image forming apparatus according to claim 3, further comprising a control device, wherein the control device at least controls the operation of the fan based on a fixing temperature of the fixing device.

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5. The image forming apparatus according to claim 3, further comprising a control device, wherein the control device at least controls the operation of the fan based on a temperature in the toner storing device.

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6. An image forming apparatus, comprising:

image carrying means for carrying a latent image on the image carrying means, wherein the image carrying means comprises a first end side and a second end side on opposite ends of the longitudinal axis of the image carrying means;

toner storing means for storing toner disposed adjacent to the image carrying means;

15 fixing means for fixing the toner image on a transfer material by heat, disposed parallel to the longitudinal axis of the image carrying means; and

cooling means for cooling the inside of a main body of the image forming apparatus, wherein the cooling means comprises an airflow path in which air enters a side of the main body of the image forming apparatus, enters the image carrying means through the first end
20 side of the image carrying means, flows through the image carrying means, and is discharged from the second end side of the image carrying means, makes a U-turn on the second end side of the image carrying means, and flows through a space between the toner storing means and

the fixing means, and returns to a position on the first end side of the image carrying means in the main body of the image forming apparatus.

7. The image forming apparatus according to claim 6, wherein the cooling means
5 comprises a duct disposed in the space between the toner storing means and the fixing means, wherein an opening of the duct is directed toward the toner storing means, and wherein a part of the airflow path is formed in the duct by covering the opening of the duct by the outside of the toner storing means.

10 8. The image forming apparatus according to claim 6, wherein the cooling means further comprises a fan at a position where the airflow path makes a U-turn.

9. The image forming apparatus according to claim 8, further comprising a control means for controlling the fan, wherein the control means controls the operation of the fan
15 based on a fixing temperature of the fixing means.

10. The image forming apparatus according to claim 8, further comprising a control means for controlling the fan, wherein the control means controls the operation of the fan based on a temperature in the toner storing means.

20 11. A method of cooling an inside of a main body of an image forming apparatus, comprising;
flowing air into an image carrier from a first end side of the image carrier;

discharging the air from a second end side of the image carrier;
causing the air to make a U-turn in a U-turn duct;
flowing the air through a space between a toner storing device and a fixing device; and
returning the air to a position on the first end side of the image carrier in the main
5 body of the image forming apparatus.

12. The method according to claim 11, further comprising providing a fan at a position
where the air makes a U-turn.

10 13. The method according to claim 12, further comprising controlling the fan to
operate based on a fixing temperature of the fixing device.

14. The method according to claim 12, further comprising controlling the fan to
operate based on a temperature in the toner storing device.

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15. An image forming apparatus, comprising:

a drum-shaped image carrier comprising a first end side and a second end side;

a toner storing device;

a fixing device; and

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a cooling device, wherein the cooling device comprises an airflow path in which air
enters a side of the main body of the image forming apparatus, enters the image carrier
through the first end side of the image carrier, flows through the image carrier, and is
discharged from the second end side of the image carrier, makes a U-turn on the second end

side of the image carrier, and flows through a space between the toner storing device and the fixing device, and returns to a position on the first end side of the image carrier in the main body of the image forming apparatus.

5 16. An image forming apparatus according to Claim 1, wherein the image forming apparatus forms images having two or more colors.

17. The image forming apparatus according to Claim 1, wherein the image forming apparatus performs multi-functional image forming operations comprising at least one of
10 copying, faxing, and printing operations.

18. The image forming apparatus according to Claim 6, wherein the image forming apparatus performs multi-functional image forming operations comprising at least one of copying, faxing, and printing operations.